

# Association of Anthropometric Indexes With Disease Severity in Male Patients With Chronic Obstructive Pulmonary Disease in Qazvin, Iran

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## Abstract

Malnutrition is one of the most important factors that lead to lower quality of life in patients suffering from chronic obstructive pulmonary disease (COPD). There are several methods for assessing malnutrition including anthropometric indexes. The aim of this study was to determine the association of anthropometric indexes with disease severity in male patients with COPD in Qazvin, Iran. This cross-sectional study was conducted on 72 male patients with COPD in Qazvin, Iran, from May to December 2014. Spirometry was performed for all participants. Disease severity was determined using the Global Initiative for Chronic Obstructive Lung Disease (GOLD) guideline. Body mass index (BMI), mid-arm muscle circumference (MAMC), and triceps skinfold thickness (TSF) were measured. MAMC and TSF were categorized into three subgroups as <25<sup>th</sup> P, between 25<sup>th</sup> P and 75<sup>th</sup> P, and >75<sup>th</sup> P (Where P is the abbreviation for percentile.). Data were analyzed using ANOVA and logistic regression analysis. Mean age was 60.23 ± 11.39 years. Mean BMI was 23.23 ± 4.42 Kg/m<sup>2</sup>, mean MAMC was 28.34 ± 3.72 cm<sup>2</sup>, and mean TSF was 10.15 ± 6.03 mm. Mean BMI and MAMC in the GOLD stage IV were significantly lower than other stages. Of 72, 18.1% were underweight while 6.9% were obese. The GOLD stage IV was associated with 16 times increased risk of underweight and nine times increased risk of MAMC < 25<sup>th</sup> P. Disease severity was associated with BMI and MAMC as indexes of malnutrition in patients with COPD in the present study. The GOLD stage IV was associated with increased risk of underweight and low MAMC.

## Keywords

Chronic obstructive pulmonary disease, malnutrition, body mass index, thinness, obesity

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Chronic obstructive pulmonary disease (COPD), as a systemic disease, has numerous extra-pulmonary adverse effects. It has been predicted that in 2020, COPD will reach the third cause of mortality and the fifth cause of disability worldwide (Pauwels & Rabe, 2004). COPD has both direct and indirect costs. Direct costs are related to the detection, medical care, prevention, and rehabilitation of the disease, while indirect costs are related to the morbidity and mortality of COPD (Guarascio, Ray, Finch, & Self, 2013). The disease not only costs governments due to pulmonary and extra-pulmonary effects but will also strongly affect quality of life in patients (Gvozdenović et al., 2007).

Malnutrition is one of the most important factors that lead to lower quality of life in patients suffering from COPD and could contribute to exacerbation of the disease

(Baccioglu, Gulbay, & Acıcan, 2014; Sanchez et al., 2011). In addition, malnutrition is also associated with increased mortality of the patients with COPD (Prescott et al., 2002;

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